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HOFFMANN & BARON, LLP
6900 JERICHO TURNPIKE
SYOSSET, NY 11791

EXAMINER	
SCHINDLER, DAVID M	

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 05/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H:A

Office Action Summary	Application No.	Applicant(s)	
	10/802,892	KIESSLING ET AL.	
	Examiner	Art Unit	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the communication filed 1/5/2006.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Note the length of the abstract and the above word range.

Also note that an amendment to an abstract should be submitted by itself on a separate sheet.

Response to Arguments

3. Applicant's arguments filed 1/5/2006 have been fully considered but they are not persuasive.

With regard to the third paragraph of page 2 of the Remarks, the Examiner respectfully disagrees. Please note the space that the waveguide is located in (see Figure 7 of Ehling).

With regard to the first full paragraph of page 3 of the Remarks, the Examiner

respectfully disagrees. Ehling does disclose a waveguide receiving space formed in the housing and extending generally parallel to the actuator receiving space of the housing (as recited in the last three lines of applicant's claim 1). See Figure 7 of Ehling in which there appears a space in which the waveguide and return guide are fitted into the housing.

With regard to the last paragraph of page 2 of the Remarks, as well as lines 1-11 of page 3 of the Remarks, the Examiner respectfully disagrees. Please see the below claim 20 rejection as well as the below discussion of this section of the Office Action.

With regard to the last paragraph of page 3 of the Remarks, as well as page 4 of the Remarks, the Examiner respectfully disagrees. Applicant states that moreover, none of the cited references disclose a method for forming an actuator device including the steps of cutting the ends of a waveguide and a return guide and inserting the cut ends into a wave guide receiving space on lines 3 of the last paragraph of page 3. It is first noted that the above statement does not appear to be explicitly claimed in claim 1. Secondly, the Examiner notes the lines 1-4 of column 6 of Ehling which states that the waveguide could comprise a solid wire or rod of conductive material, and that in such a case, two conductors could be provided to connect the two ends of the solid waveguide to appropriate electronics. Also note Figures 1 and 7 of Ehling. In short, it appears from Figure 7 that the ends of the waveguide and the return guide are inserted into a waveguide receiving space. Furthermore, the Examiner notes that that since the waveguide can comprise a solid wire, and that two conductors could be provided to connect the two ends of the solid waveguide, the ends of both the return guide and the

waveguide must have been cut in order to be connected in the manner disclosed in Figures 1 and 7, as well as in lines 1-4 of column 6 of Ehling.

With regard to the last line of page 3 of the Remarks, as well as line 1 of page 4 of the Remarks, the Examiner respectfully disagrees and notes that the device of Ehling must have been manufactured and assembled in a manner that would yield the invention disclosed in Figures 1 and 7.

With regard to lines 1-5 of page 4 of the Remarks, the Examiner respectfully disagrees. The Examiner first notes the below 35 U.S.C. 112 rejections with regard to this section of the Remarks. Secondly, the Examiner notes that the wave guide and the return guide must have disconnected ends in order to be connected (see lines 1-4 of column 6 of Ehling). Note also that from Figure 7 of Ehling it can be seen that the wave guide and the return guide both appear to have a length greater than the actuator measurement path length. Thirdly, the actuator measurement path length must have been determined to in order to yield the invention of Figure 7. Lastly, the wave guide and the return guide of Figure 7 of Ehling must have been cut to a length corresponding to the determined actuator measurement path length so that the full range of motion of the device disclosed in Figure 7 of Ehling can be detected.

With regard to the first full paragraph of page 4 of the Remarks, the Examiner respectfully disagrees and notes the above paragraphs of this section of the Office Action. Additionally, the Examiner notes that the claims do not recite a simple and cost-effective method for manufacturing a linear actuator as argued on lines 4-5 of the first full paragraph of page 4 of the Remarks.

Claim Objections

4. Claims 1-20 are objected to because of the following informalities:

As to Claims 1-20

It is noted to applicant that it appears that applicant in one instance uses the term "waveguide", and in the another instance uses the phrase "wave guide." It is recommended to consistently use the same usage of the above term/phrase. It appears that the term "waveguide" is correct. Note for example Claim 20's usage of the above term/phrase.

As to Claim 20,

The phrase "said interior actuator receiver space" on line 6 lacks antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 14 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to Claim 14,

The phrase "guide receiving space comprising a groove and/or a hole" in the second to last line appears to add new matter in that the receiving space appears to be a groove or a hole, but not both.

As to Claim 20,

The phrase "determining said actuator measurement path length" on line 13 and appears to introduce new matter. Specifically, it is not clear where the original disclosure discloses determining the actuator measurement path length.

Additionally, the phrase "cutting said ends of said waveguide and said return guide to a length corresponding to said determined actuator measurement path length" on lines 14-15 also appears to introduce new matter. Firstly, the above phrase is unclear as it is not clear whether the waveguide, the return guide, or the ends of the waveguide and the return guide are at a length corresponding to the determined actuator measurement path length. Secondly, the Examiner notes the phrase "said actuator including a position indicating magnet and being movably disposed within said housing to define a working stroke having a measurement path length" on lines 6-8 of claim 20. From the original disclosure, it does not appear that the waveguide nor the return guide are cut to the measurement path length of the working stroke of the actuator. Note for example applicant's Figure 2 in which both the return guide and the waveguide appear to be longer then the range of the working stroke.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 9 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to Claim 9,

Claim 9 recites the wave guide and/or the return guide are at least partially in a groove and/or hole extending along the working stroke of the actuator (see lines 1-3). However, the difference between the groove and/or hole versus wave guide receiving space now claimed on claim 1 is not clear (see the second from last line in claim 1).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-6, 8,9,12, 13, 14, 15, 18, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ehling (6,351,117).

As to Claim 1,

Ehling discloses an actuator movingly arranged in an interior actuator receiving space of a housing (Figure 7), and a position detecting means, in the case of which by means of an exciting current available from a current source a concentric magnetic field may be produced in a magnetorestictive wave guide for arrangement on a measurement path along a working stroke of the actuator ((Figures 1 and 7) and

(Column 5, Lines 5-10 and Lines 35-53) and (Column 6, Lines 16-28 and Lines 51-67)), such magnetic field being able to be so influenced by a position indicating magnet arranged on the actuator that an ultrasonic wave is produced deforming the wave guide ((Figures 1 and 7) and (Column 5, Lines 54-61)), and wherein the position detecting means includes a measurement means for measuring a position of the position indicating magnet on the basis of measurement of a transit time of the ultrasonic wave ((Column 6, Lines 58-67) and (Page 9, Lines 1-7 of Applicant's Specification)), wherein the wave guide and a return guide for the reflux of the exciting current to the current source are made available to a predetermined suitable degree for different lengths of measurement path at an assembly stage ((Figures 1 and 7) and (Column 6, Lines 51-57)), at which the actuator device is mounted and the wave guide is cut to a length on the assemblage stage suitable for the measurement path of the respective actuator device to be produced and an end of the wave guide is connected electrically with an end of the return guide ((Figures 1 and 7) and (Column 6, Lines 1-4)), and wherein the connected ends of the wave guide and the return guide are inserted into a wave guide receiving space formed in the housing an extending generally parallel to the actuator receiving space of the housing (Figures 1 and 7 / note the space that the waveguide (710) and conductor (711) is located in)) ((Figures 1 and 7) and (Column 5, Lines 5-10 and Lines 35-53)).

As to Claim 2,

Ehling discloses the wave guide and the return guide have ends to be connected and are arranged on the assembly stage such that the ends to be connected of the wave guide and of the return guide are open ((Figure 1) and (Column 6, Lines 1-4)).

Note that the ends must have been open prior to forming the device of figures 1 and 7.

As to Claim 3,

Ehling discloses wherein the wave guide and the return guide have ends to be connected and are arranged on the assembly stage is such that ends, which are opposite to the ends to be connected of the wave guide and of the return guide (right side connection between (18) and (16) of Figure 1), of the wave guide and of the return guide are pre-fitted on the measurement means and the current source ((Figure 1) and (Column 6, Lines 1-4) and (Column 6, Lines 51-57)).

Note that ends must be pre-fitted in order to be able to connect to the measurement means and the current source.

As to Claim 4,

Ehling discloses the wave guide is connected by a contact terminal arrangement to the return guide ((Figure 1) and (Column 6, Lines 1-4)).

As to Claim 5,

Ehling discloses the bushing is designed in the form of an oscillation damper for the ultrasonic wave ((Column 6, Lines 10-14) and (Column 7, Lines 9-12) and (Figure 1) and (Page 9, Lines 1-7 of Applicant's Specification, note Wiedemann effect)).

As to Claim 6,

Ehling discloses an oscillation absorbing means is arranged at an end, which is remote from the measurement means, of the wave guide for damping the ultrasonic wave ((Column 6, Lines 10-14) and (Column 7, Lines 9-12) and (Figure 1) and (Page 9, Lines 1-7 of Applicant's Specification, note Wiedemann effect)).

As to Claim 8,

Ehling discloses the wave guide is arranged in such a manner that the ultrasonic wave may be propagated while still allowing oscillations on the housing of the actuator device ((Figure 1) and (Column 6, Lines 16-28 / note piston head within cylinder of a machine) and (Column 6, Lines 58-62)).

As to Claim 9,

Ehling discloses the wave guide and return guide are at least partly arranged in a groove extending along the working stroke of the actuator, in the housing of the actuator device ((Figure 1) and (Column 5, Lines 44-53) and (Column 6, Lines 16-28 / note piston head within cylinder of a machine) and (Figure 7) and (Column 5, Lines 6-10)).

As to Claim 12,

Ehling discloses the signaling means (718) is arranged on the actuator device and more especially on a housing cover of the actuator device (Figure 7).

Also note Figure 7 and Column 5, Lines 6-10 with regard to the above claimed matter.

As to Claim 13,

Ehling discloses the measurement means is set by calibration to a length corresponding to the length of the working stroke of the actuator ((Column 11, Last three lines) and (Column 12, Lines 1-51)).

As to Claim 14,

Ehling discloses an actuator (702) movably arranged in an actuator receiving space formed in a housing (700) and adapted to be moved, more particularly by fluid power ((Figure 7) and (Column 17, Lines 53-67)), and a position detecting means (Figure 7), in the case of which using an exciting current (752), provided by a current source (750), in a magnetostrictive wave guide (710), which is arranged in a wave guide receiving space formed in the housing generally parallel to the actuator receiving space along a working stroke of the actuator (Figure 7), a concentric magnetic field may be produced (Column 6, Lines 58-59), such field being able to be so influenced that an ultrasonic wave is produced with a deformation of the wave guide ((Column 18, Lines 16-25) and (Page 9, Lines 1-7 of Applicant's Specification, note Wiedemann effect) and (Column 6, Lines 58-62)), wherein the position detecting means further includes a return guide and a measurement means for measuring the position of the position indicating magnet with the aid of measurement of a transit time of the ultrasonic wave ((Column 17, Lines 60-63) and (Column 18, Lines 44-67)), wherein the wave guide and the return guide (711) are arranged in the wave guide receiving space without a separate guard tube, the wave guide receiving space including in a groove (Figure 7), which extends along the working stroke of the actuator, in the housing of the actuator device (Figure 7) (Column 5, Lines 6-10)).

As to Claim 15,

Ehling discloses the wave guide is constituted by a wire ((Figures 1 and 7) and Column 5, Lines 6-10)).

As to Claim 18,

Ehling discloses a signaling means (730) for the supply of discrete position data respecting the position indicating magnet ((Figure 7) and (Column 7, Lines 60-63) and (Column 19, Lines 1-18)).

As to Claim 19,

Ehling discloses an output means for the output of substantially continuous position data with respect to the position indicating magnet (Column 12, Lines 52-61).

As to Claim 20,

Ehling discloses forming a cylinder housing having an elongated interior actuator receiving space and an elongated waveguide receiving space extending alongside the actuator receiving space (Figure 7), placing an actuator in the interior actuator receiver space (Figure 7), the actuator including a position indicating magnet and being movably disposed within the housing to define a working stroke having a measurement path length ((Figures 1 and 7) and (Column 5, Lines 6-10) and (Column 6, Lines 16-29)), providing a position detecting means having a current source ((Figure 7) and (Column 19, Lines 15-18)), a magnetostrictive waveguide and a return guide (Figure 7), wherein the waveguide and the return guide have disconnected ends and have a length greater then the actuator measurement path length ((Figure 7) and (Column 6, Lines 1-4)), determining the actuator measurement path length (Figure 7), cutting the ends of the

waveguide and the return guide to a length corresponding to the determined actuator measurement path length (Figure 7), and electrically connecting the cut ends of the waveguide and the return guide (Column 6, Lines 1-4), inserting the cut ends of the waveguide and the return guide into the waveguide receiving space of the housing (Figure 7), and assembling the position detecting means to the cylinder housing to form a fluid power driven actuator device (Figure 7) ((Figures 1 and 7) and (Column 5, Lines 5-10 and Lines 35-53) and (Column 6, Lines 16-28)).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ehling (6,351,117) in view of Aruga et al. (herein referred to as "Aruga") (5,041,935)

Ehling discloses as explained above.

Ehling further discloses "a damper, which is preferably made of a silicone, rubber or other material which can absorb mechanical waves ..." (Column 6, Lines 11-13).

Ehling does not explicitly disclose for damping oscillations a drop of an adhesive composition is applied to the wave guide.

Aruga discloses suppressing an oscillation by a damper formed of an elastic adhesive layer ((Column 3, last line) and (Column 4, Lines 1-3).

It would have been obvious to a person of ordinary skill in the art to modify Ehling to include for damping oscillations a drop of an adhesive composition is applied to the wave guide given the above disclosure and teaching of Aruga in order to minimize interference from wave reflections (see Ehling, Column 6, Lines 14-15).

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ehling (6,351,117) in view of Moreau et al. (herein referred to as "Moreau") (5,717,330).

Ehling discloses the wave guide and the return guide are arranged in a guard tube (12) and wherein the guard tube is arranged along the working stroke of the actuator ((Figure 1) and (Column 6, Lines 16-28 / note piston head within cylinder of a machine)).

Ehling does not disclose the guard tube is arranged on the housing of the actuator device.

Moreau discloses the guard tube (60) is arranged on the housing of the actuator device (Figure 5).

It would have been obvious to a person of ordinary skill in the art to modify Ehling to include the guard tube is arranged on the housing of the actuator device as taught by Moreau in order to help prevent any debris inside the housing from affecting the wave guide and return guide.

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ehling (6,351,117) in view of Takatsuka et al. (herein referred to as "Takatsuka") (6,053,976).

Ehling discloses a groove extending along the working stroke of the actuator (Figure 7).

Ehling does not disclose the groove is filled with a composition which is elastic with respect to the transmission of oscillations.

Takatsuka discloses the groove is filled with a composition which is elastic with respect to the transmission of oscillations (Column 12, Lines 5-14).

It would have been obvious to a person of ordinary skill in the art to modify Ehling to include the groove is filled with a composition which is elastic as regards the transmission of oscillations as taught by Takatsuka in order to help secure the inside of the groove. (Note Column 12, Lines 11-14 which discusses sealing performance).

16. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehling (6,351,117).

As to Claim 16,

Ehling discloses as explained above.

Ehling discloses a wave guide connected with a return guide (Figure 7).

Ehling does not explicitly disclose that the wave guide and return guide are connected by welding and/or soldering and or by means of a bushing.

However, the Examiner notes that it is well known to connect two wires together by such means as welding or soldering, the purpose of which is to allow a signal to travel through the connected wires. An example of such is found in Ehling on lines 13-25 of column 18 which discloses a pulse is transmitted to a conductor (711 / return guide) which conducts the pulse through the wave guide. Also note lines 1-4 of column 4 of Ehling. (See MPEP 2144.03).

As to Claim 17,

Ehling in the Figure 7 embodiment does not disclose the bushing constitutes a component of an oscillation absorbing means.

Ehling in the Figure 1 embodiment discloses an oscillation absorbing means ((Figure 1) and (Column 7, Lines 9-12)).

It would have been obvious to a person of ordinary skill in the art to modify Ehling in the Figure 7 embodiment to include the bushing constitutes a component of an oscillation absorbing means given the above disclosure and teaching of Ehling in the Figure 1 embodiment in order to prevent a component of a wave from reflecting and possibly interfering with future measurements (Column 7, Lines 9-12).

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Schindler
Examiner
Art Unit 2862

DS

EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800